

The Official Newsletter of the Gwinnett Amateur Radio Society
August 2021 <http://www.gars.org/> Volume 30, Issue 8



The

GARzette



August 2021 GARS Meeting: Working Amateur Satellites by Ruth Willet KM4LAO



The Georgia QSO Party



GARS meeting Tuesday, August 10, 2021 at 7:00 pm

President's Message

From the Vice President...

[ED: Joe AD4PZ, GARS President, will be back next month, something to do with QRM.]

July was our first meeting back at the EAA hangar, and it went well. We are also simulcasting in Zoom, and several members attended 'virtually.' We will work through the technical challenges as we move forward. Since we are meeting in person, door prizes will only be in person, as the logistics are a bit too complicated otherwise.

Several hamfests are on the calendar with Huntsville in August and AMRC (Alford Memorial Radio Club - Stone Mountain) in at the Gwinnett Fairgrounds in November. There are several more in the Southeast as well.

There has been a good bit of activity with gear for sale as well as wanted items. Visit our Monday night net or our Facebook group to see what's out there. If you have items you no longer need or have an item that you are looking for there is probably someone at the other end of that need. We will have some silent key items that were donated to GARS up for sale soon.

As ANCS (alternate net control station) for the Monday night net, I had a few new call signs to add to my spreadsheet. It's good to see the hobby growing. There are many ways to participate in the hobby, it's not a one-size fits all proposition. Explore the many ways you can participate, even if you have been in the hobby for a while. If you have a niche interest, consider giving



a program at the monthly meeting or a workshop. Check with the appropriate committee chair to get on the schedule.

There are many areas, a few of which are ARES (Amateur Radio Emergency Services), the Hospital Net, which is a sub-set of ARES, VE (Volunteer Examiner) Team, contesting, DX, meteor scatter, moon bounce, satellite, POTA (Parks on the Air), SOTA (Summits ...), IOTA (Islands ...), and a whole list that I have left out.

You might be surprised. In August of 2020, Bill Cherepy (WB4WTN) presented POTA at the monthly workshop. Many of us signed up, including me. I found that I already had one contact logged by an activator from the 2020 ARRL Field Day. I have since had more than 50 QSOs with that activator (a prolific activator, often 'activating' (operating from) multiple parks in one day). In a year's time I have logged over 1,000 unique parks as a 'hunter' and over 700 'on the late shift,' all from my home QTH with 100 Watts (or less) and a wire. I lack a contact to Hawaii to have the true WAS (Worked all states) award from POTA, but DC counts as a wild-card. I haven't 'activated' a park yet, but it will happen soon.

Enjoy the hobby!!

**Jamie
KX4HA**

GARS Meetings & Workshops

GARS Meetings and Workshops

GARS Meetings and Workshops will be held in-person at the EAA 690 Hangar. Meetings will also be accessible online via Zoom. See <http://www.gars.org> for more information

GARS Virtual Login and Zoom Etiquette

Zoom login info will be posted to <http://www.gars.org> prior to the meeting.

Meetings and Workshops are OPEN to all, feel free to share your invite with others.

- Workshops and Meetings will be **recorded**. By participating you consent to being **recorded**.
- Please change your display name to Your **FirstName Call Sign**, e.g. **Hiram W1AW**
- [How to change Your Display Name in Zoom](#)
- Please stay muted until ready to speak. Your space bar works like a PTT for un-muting
- To be fair to everyone, there will be a three minute limit for each person during Q & A
- You may ask questions in chat; **please stay on topic while using chat.**

GARS Meetings Schedule (second Tuesday @ 7:00 PM):

- August 10, 2021 – [Ruth Willet KM4LAO](#) – Working Amateur Satellites, FM and Linear
- September 14, 2021 – [Bill Cherepy WB4WTN](#) – Favorite Ham Radio and Related Websites
- October 12, 2021 – Show and Tell

Workshop Schedule (third Tuesday @ 7:00 PM):

- August 17, 2021 - [Steve Back WB2OGY](#) - Scouting and Jamboree on the Air (JOTA)
- September 21, 2021 – TBD (Your chance to volunteer and tell us about your ham radio project)
- October 19, 2021 - TBD (Your chance to volunteer and tell us about your ham radio project)

GARS Meeting – August 10, 2021

Working Amateur Satellites

[Ruth Willet KM4LAO](#)

will be presenting on how to make contacts using FM and linear satellites. Through this presentation, attendees will learn about a brief history of satellites, the science behind satellite communications, standard equipment needed, logical steps for making QSOs, useful apps and websites for tracking satellites, and fun ways to earn awards! The goal is to introduce ham radio operators to the complex fun of satellite communications and encourage hams to try it for themselves!

GARS Workshop – August 17, 2021

RADIO Scouting and Jamboree on the Air (JOTA)

[Steve Back WB2OGY](#)



Steve will present a presentation and video explaining RADIO Scouting, What the National and NE GA Councils do/provide, and Jamboree on the Air (JOTA).

Topics to be included; The K2BSA National Radio Scouting Committee, KK4BSA NE GA

Council Radio Club. The need for volunteers like yourself to help with JOTA.

This will be a Zoom-only meeting, login info will be posted on [gars.org](http://www.gars.org)



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GARS Communication

2 Meter Repeaters

147.075(+) MHz Tone 82.5
147.255(+) MHz Tone 107.2

1.25 Meter Repeater

224.580(-) MHz Tone 100.0,
1.6 MHz Offset

70 Cm Repeaters

444.525(+) MHz Tone 82.5
442.100(+) MHz Tone 100
442.325(+) MHz Tone 100

6 Meter Repeater

53.110 (-1 MHz) No Tone
(Offline for Maintenance)

Other Resources:

APRS

144.390 -- 1200 Baud
W4GR

D-STAR

WD4STR
145.060 + (1.4 MHz)
440.550 + (5 MHz)

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to support our
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GARzette.**

Snail Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

Notable Web Links

Ham Radio Glossary: <https://noji.com/hamradio/glossary.php> a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

Need Help – Let GARS Elmers answer your questions

Send an email to elmers@gars.org with the subject listing the area (like Antennas, Repeaters, Digital, DMR etc.) of your query to get to GARS Elmer volunteers.

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

Original articles, art, and photos are invited and encouraged. Previously copyrighted submissions cannot be accepted for reprinting unless permission from the appropriate publisher is provided in writing along with the information being submitted. If reprints are from publications allowing their unrestricted use, please include a copy of the printed permission contained in the publication.

If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to editor@gars.org. Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

The GARzette is published each month with the assistance of Karen KI4HPP and Kyle W4KDA who print copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue.

For additional information view our Website at: <http://www.gars.org>

Newsletter Email: editor@gars.org Editor: Bob Hoffman, K4CQO Assistant Editor: Bill Eggers, WB2RIS



GARS HELP WANTED

Speakers Needed for GARS Workshop Presentations, 3rd Tuesday of the month – Email workshop@gars.org to volunteer. [PS— Articles to publish in the *GARzette*, either written by GARS members or published elsewhere, are always welcome. —Ed.]

GARS Happenings

20 Years ago in the August 2001 GARzette:

- Mike Kovack, K4MJK wrote an article on internet linking of 2M repeaters
- Wayne Chapman KG5WU wrote an article on ARES support of the sporting activities in GA
- Earl Whatley, AF4FG provided a Ham summer vacation article
- There was a complete listing of the 2M repeaters in Atlanta and surrounding areas

You can always browse the GARzette archive at <http://www.gars.org/newsletters>
73, Bob, K4CQO, GARzette Editor



Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on gars.org and use it as a means to convey information about a GARS family member or Silent Key notification.

Net Managers Corner

Monday Night 2 Meter “Want, Swap, Sell, and Information Net”

GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club with the membership and awards to prove it. Our club is very busy and active, and we use the Monday night net to get timely information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people who make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

Out of almost 300 members, there are only seven operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Don – KW4AL
Glen – W3WWT

Ray – N4GYN
Russell – AB4QQ

Bill – WG9NUW
Chuck – KK4TKJ

David – KA4KKF
Charlie – WS4TOT

As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club. The “Want, Swap, Sell Information Net” begins promptly at 19:30 every Monday night and runs about 30 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact me at KK4TKJ@arrl.net. Sign up to help support the effort that makes GARS the great club that it is. 73 and see you on the Nets!

Being a Volunteer Examiner (VE)

An Article by Bob Hoffmann K4CQO

When I received my license – the second time – I was grandfathered into General class (since that was the license I held the first time, and let it lapse) by only taking and passing the Technician test. Nice, but so much has changed since the 1960s, that I figured that I had to do some learning to really know ham radio before I actually started operating. Well, that isn't quite true since I had already purchased an Icom 706 to use.

After a couple of months and the Amateur Extra under my belt, I was really impressed with the GARS group and decided to give back to them and to the ham radio community by becoming a VE. You have to be at least a General class, and with that you can grade the Technician tests. Advanced class licensees can grade Technician and General tests. Only Amateur Extra class licenses can grade Amateur Extra tests along with the Technician and General tests. It takes a little paperwork engineering so that anybody that is going to test for an Amateur Extra class license has to have only Amateur Extra class people grade and sign the paper work. All that is worked out by the very capable VE team leaders that the GARS group has.

Getting to be a VE is pretty simple. First off there is more than one VE group that give amateur radio exams. The GARS VE team testing uses W5YI-VEC. W5YI-VEC is one of 14 Volunteer Examiner Coordinators that can do ham radio licensing. The ARRL-VEC is another and is used at the Stone Mountain Hamfest. Many of the GARS VE members are certified in both W5YI-VEC and ARRL-VEC as VEs. I am also, and the easiest way to get both is starting out with W5YI-VEC as a VE and then get it carried over to ARRL-VEC. That method is the easiest. I did it by getting certified by each independently – so that I could help out at the Stone Mountain Hamfest. The paperwork was still getting processed, and was not going to be completed in enough time. The ARRL-VEC certification involves reading the VE duties and taking an online test. It is open book, so it is not a difficult process – but it is a good idea to understand what is involved in the testing process because you are going to part of the team that actually is responsible to get the tester's paper work submitted and filled out correctly. Don't worry though, beginning VEs learn as they go and are not expected to do the submittal of the test info to the VE organization like W5YI-VEC or ARRL-VEC.

Getting back to how to get your GARS VE certification, Dave (W4DTR) or one of his co-leaders, or one of the senior members of his team does the training – which means sitting in on the VE testing sessions and getting their hands-on instructions on what is needed and answering all of your questions. They also recommend that you get yourself a copy of the W5YI-VE manual and actually read it. There is no test going this route, and the hands-on training that is given works out very well to understand the roles of the VE and what is needed to be a VE. This training serves the same purposes as the ARRL on-line test. Each VEC group determines their own VE requirements.

Each VEC group decides how long your VE accreditation will last before you need to renew, and some VEC groups also require that you participate in an exam session every so often.

GARS testing, before the pandemic, was held every second Sunday on the month at one of the Gwinnett County Fire Stations by the Mall of Georgia. The GARS group has begun since June having the testing sessions again and have relocated to the EAA 690 hangar because it was available. The group of GARS VEs are a great group of hams and each one is dedicated to help grow the ham radio group by providing testing opportunities. I thought that I would share what my journey was and let you know how it works and maybe take some of the mystery out of getting to be a VE volunteer.

Local Event Volunteer Opportunity

Suwanee Fest is an annual fall festival that happens on September 18 & 19.

They will need help in several areas of the festival but specifically, the parade and transportation areas.

The Suwanee Festival Planning Committee asks:

- For the parade, we could use people assisting with safety of the parade participants in the line-up area and also in the parade “ending” area to make sure folks keep moving and don’t clog our street trying to disband in the middle of the road! This would be about 12 people helping with set-up and group locating – from 6 am to 9am on Saturday 9/18 and maybe another 10 or so people helping at the end of the parade along the disband route – from 9:30 am to 11 am. This could be some of the same group!
- Another large area that needs adults (we get lots of high school kids to volunteer but need adults in some areas!) is our transportation area. Adults who can help manage our buses, loading and unloading as well as making sure our attendees know where to “go” back to their lots, etc. We have three satellite parking locations which all arrive in our park. We would love to have a group of adults to manage this for us by being in the lot with about 6 people ALL day on Saturday and Sunday. The parking lot is open from 8 am to 7 pm on Saturday and from 11 am to 6 pm on Sunday. If we had about 8 people here during all of those hours, they could help with buses and our parking lot security for both days. We close the lot down to public parking but do have limited access (with a visible parking pass) for employees and residents. We also start closing this lot on Friday and would even be happy to have a couple of people on hand on Friday during our event set-up to help load in and set-up the event! Friday 9/17 set-up crew of 10 to 12 people from noon-7 pm would be a HUGE help if people were available!
- We also have smaller events where we can use a few folks here and there – and we can share those as needed. Suwanee Fest is our largest event and we’d love to see you guys be part of it!

If you think you’d like to help with this exciting venue, please visit their web site ‘volunteers section’ at: <https://suwaneefest.com/volunteers/>

Drake TR-3 Transceiver

Vintage Amateur Radio

de Bill Shadid, W9MXQ



As the market for ham radio equipment was changing, Drake Radio Company made a major leap into the fray with the 1963 introduction of the all vacuum tube TR-3 HF Transceiver. This radio continued the theme introduced by Collins Radio Company with the KWM-2 and KWM-2A Transceivers. The TR-3 was soon replaced with the visually similar Drake TR-4.

The TR-3, and the similar TR-4 designs, lived into the late 1970's. For a time, the last TR-4C version was made in parallel with the much-touted Drake TR7 all solid-state transceiver. Before the Drake TR7's introduction, the design competed head to head with American and Japanese solid-state and hybrid radios. We should not underestimate the success of this line of transceivers – the first TR-3 to the last TR-4C.

This Drake TR-3 article is the first of a two-part series on the Drake Vacuum Tube Transceivers. This article shows the TR-3 while the next one shows the TR-4 and TR-6.



Drake TR-3 80-10 Meter SSB/AM/CW Transceiver in 1963
(W9MXQ Collection)

Drake took the same approach as Hallicrafters in meeting the demand created by Collins with the introduction of their S-Line series. Like Hallicrafters, Drake introduced a transceiver first and then later introduced a separate receiver and transmitter in the same line. Subject of a later article, Drake introduced the separate R-4 Receiver and T-4X Transmitter in 1965. Like the Collins KWM-2, but unlike

the competing Hallicrafters SR-150, Drake did not include Receiver Incremental Tuning (RIT) in the TR-3 Transceiver.

Drake, like everyone other than Collins, made the TR-3 an acceptable transceiver on CW with proper and automatic offset for hearing the other station. The lack of RIT, however, offset that advantage in a time when drifting VFO's could play havoc in a longer QSO – both parties would move across the band while adjusting for the other's drift.

In a league of its own, Drake, unlike Collins and Hallicrafters provided real AM mode receive in the TR-3 with a diode detector. But they only went so far – as with all crystal filter SSB generation transceivers, there is only one sideband present on AM. In those days, “real AM guys” would watch for that and call you out on it – those were the big days of the AM vs SSB battles!

Drake did offer an alternative to RIT by offering a full external VFO, the model RV-3, for use with the TR-3 Transceiver. With the RV-3 one could separate receiver and transmitter frequency – perhaps leaving the transmit frequency static while adjusting the receiver.



**Drake RV-3 External VFO
(Universal Radio)**



**Drake RV-3 showing the
AC-3 Power Supply mounted in the rear
(W9MXQ Collection)**

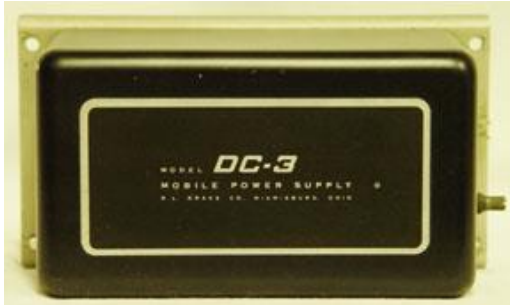
Did you notice (left picture, above) the speaker grill in the RV-3? That was the way Drake managed to compress the table top requirements of the TR-3 station. This is like the feature set in the Collins 312B-5 External VFO for the KWM-2. (Collins' appearance was a bit more elegant.) To the right you see a rear view of the RV-3 showing the matching AC-3 AC Power Supply for the transceiver. Note the three cables coming from the rear of the RV-3/AC-3 Assembly – left to right they are AC Power Cord, Control/Supply Cables to plug into the TR-3 Power and External VFO connectors, and the cable from the speaker going to the TR-3. The bias set potentiometer is between the AC Power Cord and Control/Supply Cable and sets standby bias for the 12JB6 finals – part of the setup procedure for the initial installation.

Note: Standby Bias should be checked frequently on tube transmitters. In my opinion, it is more important to be a little more frequent with checks when using sweep tube finals.

Drake also offered a Speaker Console alone, the model MS-3. This was for users that needed a speaker and a housing for the AC-3 Power Supply but did not want the RV-3 External VFO. The rear view of the RV-3 and AC-3 shown above would be identical to a rear view of the MS-3 and the AC-3. In fact, the MS-3 and the RV-3 used the same Drake outer cabinet. Pictures of the MS-3 are rare and I could not find one I could legally use. The MS-4 Speaker is shown in next month's article about the TR-4 and is accessories. The MS-3 was identical except that no front panel nameplate appeared on the MS-3 Speaker.

Drake offered a variety of microphones for the TR-3 – both hand microphones and desk microphones. The ones I have seen – and I may not have seen them all – were private label units from Electro-Voice and Astatic. Personally, my favorite and best sounding microphone, with my voice, on the TR-3 or TR-4 series radios is the Astatic D-104 – the model without the amplifier in the base. I also have successfully used the Shure 444 (the high impedance model or the 444D with the setting at High Impedance). But, alas, my Shure 444 contains a Heil retrofit microphone element, so it is not authentic – yet it generates audio compliments.

Drake also offered a DC-3 DC Power Supply for running the TR-3 in an automobile, boat, airplane, or anywhere 12 Volts DC was the available power source. Below is a picture of the DC-3 Power Supply:



The Drake DC-3 Power Supply was a neat, compact package with a switching circuit, like most all DC supplies of the day, to allow a high frequency oscillator and transformer to convert 12 volts to the various voltages needed by the TR-3 Transceiver. It was designed to mount on the bulkhead of the vehicle.

(Picture from Universal Radio)

The front panel size of the TR-3 was shared with all similar Drake equipment of the era. It was 5-1/2" high x 10-3/4" wide – quite compact for the day. The depth of the TR-3 was substantial at 14-1/2" – deeper than all of its accessories. The TR-3 was virtually all vacuum tube circuitry with little use of solid state devices except in the AC-3 and DC-3 Power Supplies. For the day, the TR-3 was quite stable and later solid-state versions of the Drake PTO were not substantially better than the excellent design that Drake provided in 1963. Like in the vacuum tube PTO provided by Collins in the S-Line, the well-designed Drake product was exemplary for the time. (To be sure, I would not want to attempt FT8 QSOs' today with a Drake TR-3!)

Unlike Collins, Drake did not choose the tried and proven 6146 tetrodes in the TR-3. Instead they went for three 12JB6 Sweep Tubes. Each of these tubes is capable of 100 watts input power – for an input on SSB of 300 watts PEP. CW operation was a bit less at 260 watts input, key down. Output power was about 50% to 60% of those numbers. The trio of tubes is capable of more - but not without unacceptable distortion and a significant shortening of their life.

As I will cover in a later article on the TR-4 series of transceivers, Drake did not keep this tube model. Instead they moved to the more common 6.3-volt version of the tube, the 6JB6. Drake was a firm partner with Sylvania in those days – and nirvana in a vintage Drake transmitter circuit are Sylvania final amplifier tubes.

In the day of the TR-3, Drake did not manufacture a linear amplifier. Provisions for working with an amplifier, however, were included. And, it must have been known at the time that the Drake L-4 Linear Amplifier (not to be confused with the later L-4B) was close behind. The grid driven, untuned input of the amplifiers of the day (for the most part) could accommodate the high output of the TR-3. More advanced, tuned input amplifiers would perhaps require a 3dB pad between the transmitter and the amplifier or careful adjustment of the output of the transceiver by loading the transceiver a bit light. One suggestion I recently heard on the Drake Net (7.238 MHz on Sunday afternoons) was to offset the Driver Tune a bit. That is an interesting thought given that such action also offsets the receiver's front-end tuning and the receiver sensitivity rapidly drops off. Perhaps noted by a non-user of the radio. But as with all such advice, I generally "take it under advisement."

Drake had a procedure for using a second receiver with the TR-3, instead of a separate VFO, like the RV-3 mentioned above. But, you could not transceive with this arrangement. With this procedure, one could connect and even control the muting of a separate receiver. The manual shows such an arrangement working with their premier receiver of the day, the Drake 2B HF Receiver. One flaw in the arrangement, corrected on the later TR-4 Transceiver, was the requirement to use an external switch and a relay to engage the remote receiver and to switch the antenna from the transceiver to the receiver. A complicated arrangement to be sure but back in the days of a brand-new TR-3, ham operators were more tech-savvy and willing to make such adjustments to gain features. And, manufacturers were more willing to encourage modifications of their equipment. In this case, it was a “procedure,” not a “feature.”

Note: Drake used a different conversion scheme in the TR-3 and TR-4 Transceivers from what was used in the 2-Series Receivers and the 4-Series Receivers and Transmitters. There was no convenient way for frequency control of the TR-3 or TR-4 Transceivers to work with any Drake Receiver. However muting and antenna input for an external receiver was a feature of the TR-3 and TR-4 Transceivers.

In the 1950's and 1960's – certainly in the time of the Drake TR-3 – it was all the rage to copper plate a radio's chassis. “Better conductivity,” “easier to solder directly to the chassis,” and “looks very nice” were all reasons for this trend. Now, move forward over 50-years and most of these chassis have turned black and/or some sort of iridescent black, brown, and green that is, well, just plain ugly. It does not impact operation, but it sure does look bad – no, not bad, “terrible” is the word!! Flawless ones are around – a Drake copper chassis receiver and transmitter set I bought new in about 1970 is still perfect and resides with the person I sold it to many years ago. I aligned it for him a few weeks ago and marvel at its appearance.

Drake radios starting with models that included a “C” in their model number stopped this process. Those chassis used the same steel construction but were cadmium plated and chromate dipped. They look nice unless subjected to enough moisture to allow them to rust. I will add that this “C” in the model number identifier was true but other models also had stopped using copper plating by that time. I no longer have any copper plated chassis Drake products in my radio collection.

Drake had a rather odd crystal i-f filter mechanical design in the TR-3. Their design used a separate filter for USB and LSB. So, there were two filters – and those filters existed in the circuits through the entire “3” and “4” product line. For the TR-3 however, both filters were encapsulated inside a can that looked like a miniature soup or tuna can – hence the nick name of “soup can” filters. These filters, as the years would prove, were problematic. They are now what we collectors like to call, “unobtainium,” or “no longer available.” The filters were used in early TR-4 Transceivers as well. If found in a radio today, they either work – in which case they are likely to keep working – or they are not working and no replacement (other than one sacrificed from a parts unit) will restore the radio to operation. Also, the TR-3 and early TR-4 radios with the “soup can” filters are working with a 4-pole design. The older units have less selectivity than the later, separate units with 8-pole filters. Filters to replace the late TR-4 separate filters are available from INRAD (<http://www.inrad.net>). However, there are a lot of interface issues that makes this solution less satisfactory for retrofit to a TR-3 or early TR-4.

I should add to the crystal filter story that Drake's very first crystal filter in a transmitting model was the TR-3 Transceiver. Drake stayed with inductive tuned circuit i-f filtering in its receivers (but not its transmitters) until the Drake R-4C Receiver was introduced along with its quantum leap in selectivity with very well-designed crystal filters. That is a story for a future article.

There is also an oddity in the Drake TR-3 (and all TR-4) transceivers that is the result of the conversion scheme. Check the PTO dial in the TR-3 picture at the start of this article. Note that on 80, 40, 15 and 10 meters the frequency goes up as the dial progresses to the right. But on 20 meters it progresses downward for the same dial direction.

Notice in that same picture, the UPPER and LOWER (sideband) lamps on the front panel. Instead of

Upper or Lower Sideband being verified by position of the bandswitch or the mode switch (not labeled as such), it is verified instead by those lamps – since it changes in relation to the conversion scheme. You will note that to switch to the opposite sideband you use the SIDEBAND switch. On AM and CW modes, the SIDEBAND switch must be in the “X” position. Again, this covers some “smoke and mirrors” trickery to deal with the radio’s conversion scheme – which could be the topic of another article! In another time, Drake would have added a wafer or two on the bandswitch to get around the rather confusing front panel layout. In operation with the TR-3, or TR-4, the issue fades away after a few seconds of operation.

For conservation of panel space and the desire to eliminate the need for a meter switch, Drake equipped the TR-3 with two horizontal meters. The top meter reads plate current on Transmit and the bottom meter is an S-Meter on Receive. The S-Meter (bottom meter) monitors transmitter AGC in the transmit mode (we now call that ALC).

Drake made a Noise Blanker for the TR-3 that I have never seen and have rarely seen mentioned. I will rely on a bit of what may be tales here when I mention the 34-NB Noise Blanker that may, or may not, have been made for the TR-3 and early TR-4 Transceivers. The later TR-4’s onward did use the 34-PNB Noise Blanker – one of which is in my own TR-4CW/RIT. An early TR-4 that I own has that mysterious and rare, 34-NB, retrofit into the TR-4 chassis. Especially at the time of the TR-3 and TR-4 in mobile service, a Noise Blanker would have been a nice accessory to have.

Today, given the choice, I would choose as somewhat more advanced Drake TR-4 Transceiver. In fact, I do have and use a TR-4C. But, to the point, the TR-3 is a pleasure to use with a very respectable barefoot signal of 150 watts output. I once had a TR-3 Transceiver with the RV-3 External VFO and the AC-3 Power Supply – but it is long ago gone in a trade. One of my fellow club members, in one of the clubs to which I belong, has a very nice example of a TR-3 that works – and that he loves after bringing it back to life. So, I guess it is better said that there are no bad radios – just radios with a different story to tell.

If you are interested in a Drake vacuum tube transceiver – look for a TR-3 or any of the various TR-4’s. If a TR-3, make sure it is working. Look forward to QSO’s that follow QSO’s with each new contact wanting to hear the story of your vintage Drake radio. Drake radios carry bragging rights!! AND, they are all made in the good old USA. The filter in the TR-3 notwithstanding, most Drake radios work and get on the air once you know the power supply is safe. Old Mr. Drake knew how to make long lasting radios!

Stay tuned to several more articles in the future on Drake – right up to the final ham radio HF transceivers – the TR7A and the TR5. And even a few words on the never produced TR8.

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, W9MXQ@TWC.com.

A special thanks to Bob, W9DYQ, and Gary, K9DJT, for proofing this article.

© **W9MXQ**

The entire article is available on-line, see

http://www.gars.org/newsletters/2021_08_GARZETTE.pdf



The

GARS Membership

New Members List in July

Rick Baker (KO4RWY)
Mark Prichard (KN2TOD)
Brad Scarlett (KE0CKW)
Sadiah Bilal (KE0CJY)

New Members: 4

**Total Members as of
July 31, 2021
349**

Join GARS members for our weekly breakfast
gathering at
7:30 AM most Saturdays
Now at
Cracker Barrel Restaurant
75 Celebration Dr.
Suwanee, GA 30024

Birthdays in August

Emory Albritton
Kyle Albritton (W4KDA)
Bruce Brown (WA8IQF)
Stephen Dearman (KI4IXR)
Philip Graham (N4PRG)
George Guerin (KM4BOS)
David Harden (KJ4CMY)
Jared Hawkins (KM4SSI)
Conor Huneycutt (KN4VNU)
Gary Jones (W4HX)
Cheryl Kempster
Ron Langston (WE5O)
Samuel McClure (KM4AAO)
Lige Sims (AB4OK)
Robert Sloan (WA4DD)
Earl Whatley (AF4FG)
Larry Whited (AB4NX)

GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message.

To become a GARS member, or to renew your GARS membership, please visit our website—<http://www.gars.org>

To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please e-mail the Membership Committee - membership@gars.org

You can renew or update your Amateur Radio license information with the FCC at their website for free
<http://wireless.fcc.gov/uls/index.htm?job=home>

To update your ARRL information, please visit their website - <http://www.arrl.org>

Membership Chair: Karen Albritton, KI4HPP

Committee Members: Dave Bruse, W4DTR

GARS General HamCram

We had a great exam session at our General Ham Cram Class held the last weekend of July. 5 out of 5 applicants passed! Congratulations to John, WB4QDX and Ralph, KJ4CNC for another job WELL DONE!!!. Exam session results:

- 5 upgraded to General

Special thanks to the Volunteer Examiners who made this exam session possible:

Dave Bruse, W4DTR (VE Team Lead)
Don, KK4NJM (Co-CVE)
Pam, WB1AKQ
Chuck, KK4TKJ (Co-CVE)

Earl, AF4FG
Frank, KV4SP
Richard, KM4SWL



The

Repeater Status

6M	Currently down
147.075	Operational in Snellville
147.255	Operational in Snellville
224.580	Operational in Grayson
442.100	Operational at Goshen Springs
442.325	Operational in Buford
444.525	Operational in Snellville

Link remote receivers being added

Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Amazon Smiles;
- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

<http://gars.org/gars/donations-to-the-club>

GARS on Social Media



Discord Request:

<http://gars.org/discord>



Groups.io:

<http://gars.org/groups.io>



Visit GARS on Facebook:

<http://gars.org/facebook>



Follow GARS on Twitter:






<http://gars.org/twitter>


















Join GARS on YouTube:

<http://gars.org/youtube>





Officers

Joe Biddle, President	AD4PZ	
Jamie Burns, Vice President	KX4HA	
Bill Hawkins, Secretary	WR1TR	
Pam Meridy, Treasurer	WB1AKQ	
Kevin Scott, Program Manager	K4GTR	

Managers and Committee Chairs

Karen Albritton, Membership Chair	KI4HPP	
Dave Bruse, VE Team Leader	W4DTR	
David Adcock, Webmaster and Field Day Chair	KA4KKF	
Ralph Pickwick, Apparel Manager and Education Chair	KJ4CNC	
Glen Wendt, TechFest Chair	W3WWT	
Bob Hoffmann, GARzette Editor	K4CQO	
Eddie Foust, Repeater Chair	WD4JEM	
Mike Weathers, WAS / DXCC QSL Card Checker and Historian	ND4V	
Chuck McCord, Net Manager	KK4TKJ	
Steve Back, Technical / RFI Advisor	WB2OGY	
Joe Biddle, Winter Field Day Chair	AD4PZ	
Kyle Albritton, Multimedia Chair	W4KDA	
Don Stewart, Elmer Manager	KW4AL	
Sandy Jackson, Health and Wellbeing	KJ4DRO	
Dave Slotter, Georgia QSO Party Chair, Workshop Leader and Public Information Officer	W3DJS	

Directors and Trustees

John Davis, WB4QDX		Rick Cobb, N4XY	
Mike Weathers, ND4V		Bill Cherepy, WB4WTN W4GR Trustee	



The

GARS Meeting Minutes

Gwinnett Amateur Radio Society – GENERAL 7/13/2021

In person and online meeting.

President Joe Biddle (AD4PZ) and Opened the meeting at 7:15 pm and closed the meeting at approximately 9:00pm

Participants: 42 in person – 16 online

Treasurer's Report: Provided by Joe (AD4PZ)

Education: Joe (AD4PZ)

- A general Ham Cram is planned for July 24 – 25 at the hangar

Health and Well Being: Sandy (KK4RO)

- Best wishes to Don (KW4AL) injured with a broken arm.
- Requests for health and well being follow-ups should go to Sandy KK4RO@gmail.com

Membership: Karen (KI4HPP)

- Karen reported 347 members
- New members were recognize: Butch (KO4RHS), and Zachary (KO4NZB)

Programs: Kevin (K4GTR)

- August – Ruth, KM4LAO, will present on satellites (FM and transponder)
- September – favorite web sites
- October – Show and tell

Workshop: Dave (W3DJS)

- July program – Power Poles
- August program – Soldering.

Program: Kevin (K4GTR presented Wifi for Hams.

Workshop Minutes - July 20, 2021

Number in Attendance: 17

Workshop Topic: Anderson Power Pole Connectors

Presenter: Dallas KD4HNX

Brief Summary: Dallas went over the basics of making proper Anderson Powerpole connectors so your connectors will match those made by MFJ, Powerwerx, and others. Many hints and tips were shared on how to make them right such as, to use the silver plated pins vs the tin ones so they last 500% longer. ARES Task Books were signed.

Door Prize Winners: Earl AF4FG and Emma (no call yet)
- 10\$ HRO Gift Certificates.

Submitted by: Dallas KD4HNX



The

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar
> For more information click the links <

August 2021

7-8 [222 MHz and Up Distance Contest](#)

14-15 [10 GHz & Up – Round 1](#)

15 [Rookie Roundup – RTTY](#)

September 2021

TBD [EME - 2.3 GHz & Up](#)

11-13 [September VHF](#)

18-19 [10 GHz & Up - Round 2](#)

October 2021

18-22 [School Club Roundup](#)

TBD [EME - 50 to 1296 MHz](#)

November 2021

6-8 [Nov. Sweepstakes - CW](#)

20-21 [Nov. Sweepstakes - Phone](#)

TBD [EME - 50 to 1296 MHz](#)

December 2021

3-5 [160 Meter](#)

11-12 [10 Meter](#)

19 [Rookie Roundup-CW](#)

18-19 [EME - 50 to 1296 MHz](#)

January 2022

1 [Straight Key Night](#)

1 [Kid's Day](#)

8-9 [RTTY Roundup](#)

15-17 [January VHF Contest](#)

February 2022

14-18 [School Club Roundup](#)

19-20 [International DX – CW](#)

March 2022

5-6 [DX Contest -- SSB](#)

April 2022

10 [Rookie Roundup – Phone](#)

May 2022

No planned contests

June 2021

11-13 [June VHF](#)

18 [Kid's Day](#)

25-26 [Field Day](#)

July 2022

9-10 [IARU HF World Championship](#)

For more information:

<http://www.arrl.org/contest-calendar>

HAMFEST CALENDAR

[Please confirm the status of a Hamfest before making plans to attend. – Ed.]

08/14/2021 - Fort Pierce Hamfest

Location: Fort Pierce, FL

Type: ARRL Hamfest

Sponsor: Fort Pierce Amateur Radio Club

Website: <http://FPARC.ORG>

08/14/2021 - Georgia State ARES Meeting & Convention, an ARRL Specialty Convention

Location: Forsyth, GA

Type: ARRL Convention

Sponsor: Georgia ARES

08/21/2021 - 08/22/2021

Huntsville Hamfest, ARRL Southeastern Division Convention

Location: Huntsville, AL

Type: ARRL Convention

Sponsor: Huntsville Hamfest Inc

Website: <https://hamfest.org>

08/21/2021 - TarcFest XLV

Location: Tampa, FL

Type: ARRL Hamfest

Sponsor: Tampa Amateur Radio Club

Website: <http://www.hamclub.org>

09/11/2021 - Gadsden Amateur Radio Club Hamfest

Location: Attalla, AL

Type: ARRL Hamfest

Sponsor: Gadsden Amateur Radio Club

10/08/2021 - 10/09/2021

56th Annual Melbourne Hamfest, ARRL Florida State Convention

Location: Melbourne, FL

Type: ARRL Convention

Sponsor: Platinum Coast Amateur Radio Society

Website: <http://pcars.org>

10/08/2021 - 10/09/2021

North Okaloosa Amateur Radio Club Hamfest

Location: Crestview, FL

Type: ARRL Hamfest

Sponsor: North Okaloosa Amateur Radio Club

Website: <https://w4aaz.org/noarc-hamfest/>

10/16/2021 - Gulf Coast Amateur Radio Club

Location: New Port Richey, FL

Type: ARRL Hamfest

Sponsor: Gulf Coast Amateur Radio Club

10/23/2021 - Deep South Amateur Radio Club

Location: Chickasaw, AL

Type: ARRL Hamfest

Sponsor: Deep South Amateur Radio Club

Website: <http://k4dsr.com/>

For more information: <http://www.arrl.org/hamfests-and-conventions-calendar>

When searching by division, remember some states adjacent to GA are in different divisions:

Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC



The

GARS Events Calendar for 2021		GARS Recurring Calendar
TechFest General HamCram Dog Show Fundraiser Georgia QSO Party North metro area Fox Hunt Spring Technician HamCram Memorial Day Parade ARC/KARC Hamfest Field Day Summer General HamCram Fall Technician HamCram JOTA Maker Faire Stone Mt. Hamfest Holiday Party		Cancelled for 2021 TBD April 1-4 2021 April 10-11 2021 April 2021 April 2021 May 31 2021 Cancelled June 26-27 2021 TBD TBD October 16-17 2021 TBD November 6-7 2021 December 14 2021
		<ul style="list-style-type: none"> 2nd Tuesday of the month at 7 pm (except December): Monthly Club Meeting (online until further notice) 3rd Tuesday of the month at 7 pm (except December): Monthly Workshop (online until further notice) 2nd Sunday of the Month at 2 pm GARS Ham Exam Session 690 Airport Rd Lawrenceville, GA 30046 Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater Most Saturdays at 7:30 am : GARS Weekly Breakfast Cracker Barrel Restaurant 75 Celebration Dr., Suwanee, GA 30024
GARS CALENDAR FOR August 2021		

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 7:30 – 8:00 PM GARS 2M Net	3 7:00 – 8:00 PM GARS Exec Meeting (Online)	4	5	6	7 Breakfast at Cracker Barrel in Suwanee 7:30 AM
8 GARS VE Exam Session EAA 690 Hanger	9 7:30 – 8:00 PM GARS 2M Net	10 7:00 – 8:00 PM GARS Meeting EAA 690 Hanger	11	12	13	14 Breakfast at Cracker Barrel in Suwanee 7:30 AM
15	16 7:30 – 8:00 PM GARS 2M Net	17 7:00 – 8:00 PM GARS Workshop EAA 690 Hanger	18	19	20	21 Breakfast at Cracker Barrel in Suwanee 7:30 AM
22	23 7:30 – 8:00 PM GARS 2M Net	24	25	26	27	28 Breakfast at Cracker Barrel in Suwanee 7:30 AM
29	30 7:30 – 8:00 PM GARS 2M Net	31				



The

Local Ham Radio Exams & Meetings

Local Ham Radio Exams

[Please check with each session contact for current status.—Ed.]

GARS publishes Metro Atlanta VE exam schedules as a service and is not responsible for errors or changes. Call and confirm schedules before going. All sessions are walk-in, unless otherwise noted. Take copies of current license and certificate of completed elements with you to all sessions. Find additional sessions online at <http://www.arrl-ga.org>

First Sunday, ODD Months

2 pm (Jan, Mar, May, Jul, Sep, & Nov)

VEC: WCARS

Braselton Public Utility Building

4986 Highway 53, Braselton, GA

Contact: Nat Christman K4VQ, 678-371-7103

christmans30680@gmail.com

First Sunday, EVEN Months

2 pm (Feb, Apr, Jun, Aug, Oct, Dec)

VEC: WCARS

Hall County EOC

470 Crescent Dr. Gainesville, Ga.

Contact: Perry Roper, KO4RD

(770) 536-3056

Second Saturday

10:00 AM

Alpharetta North Park, Adult Activities Center

13450 Cogburn Rd, Alpharetta, GA 30004

Contact: Ian Kahn, KM4IK

E-mail: km4ik.ian@gmail.com

Third Saturday, ODD Months

VEC: ARRL

9:30 am (Walk-ins welcome)

Stone Mountain Masonic Lodge

840 VFW Drive

Stone Mountain, GA 30083

Contact: Frank Haynes, KV4SP

Email: fhaynes@vatmom.net

(678) 467-3712

First Sunday, EVEN Months

VEC: WCARS and W5YI

2 pm @ Barrow Co. Emerg. Serv. Bldg

66 McElroy Street

Winder, GA 30680

Contact: Mike Wolcott, W4WYI

(404) 281-6581

E-mail: W4WYI@ARRL.net

Fourth Tuesday

ARRL VEC

7 pm @ United Way Service Center

6279 Fairburn Rd., Douglasville

Contact: Jessie Clower, KB4WFK

(770) 942-6466

Fourth Sunday

2:30 pm Georgia Tech

VanLeer Elec. Building

Rm. W218, 777 Atlantic Dr.

For more information go to www.w4aql.com and click on "Test Sessions"

GARS Ham Radio Exams

Second Sunday of the month

VEC: W5YI

2 pm At the EAA 690 Airport Hanger

We had a very successful exam session on Sunday, July 11. Four applicants tested. One applicant earned his Technician license and three upgraded to General.

Thanks to all the VE's who made the session possible:

- Don Bagby, KK4NJM (Co-CVE)
- Steve Back, WB4OGY
- Earl Whatley, AF4FG
- Bill Cherepy, WB4WTN
- Bob Hoffmann, K4CQO
- Russell Prevost, AB4QQ
- Richard Kitz, KM4SWL
- Frank Haynes, KV4SP

73, Chuck, KK4TKJ (Co-CVE)

GARS VE Team Leaders

E-mail: exams@gars.org

GARS VE Website: <http://gars.org/exams> has location information and testing requirements.

Local Meetings

[Please check with each club for meeting schedule and method (online, etc.) - Ed.]

First Tuesday

Kennehoochee ARC

Fire Station #1, Training Room

112 Haynes Street, Marietta, GA

Meeting begins at 7:00pm

Talk In 146.880(-)

First Thursday

Atlanta Radio Club

Georgia Red Cross HQ

1955 Monroe Dr., Atlanta, GA

Meeting is at 7:30pm

Talk In -146.820(-)

N.E. Georgia ARC

Commerce Public Library

1344 South Broad Street, Commerce, GA

Meeting is at 6:30pm

Talk In - 147.225(+), PL 123.0

Second Monday

Georgia Tech ARC

Room W218

Van Leer Electrical Engineering Bldg.

Georgia Tech Campus

Meeting at 7:00pm

Sawnee Amateur Radio Association

Beaver Toyota

1875 Buford Highway, Cumming, GA

Meeting at 6:30

Second Thursday

Alford Memorial Radio Club

Annistown Road Baptist Church

Annistown Rd & Spain Rd

Stone Mountain, GA

Dinner at 6:00pm, Meeting at 7:30pm

Talk In - 146.760(-)

Second Saturday

North GA QRP Club

Board Room of The Shepherd Center

2020 Peachtree Rd, NW, Atlanta, GA

at 10:00 AM

Third Tuesday

North Fulton Amateur Radio League

Alpharetta Recreation & Parks Dept.

Alpharetta Adult Activity Center

13450 Cogburn Road, Alpharetta, GA

meeting at 7:30pm

Talk In - 145.47(-)

For more information, go to:

<http://www.gars.org/>

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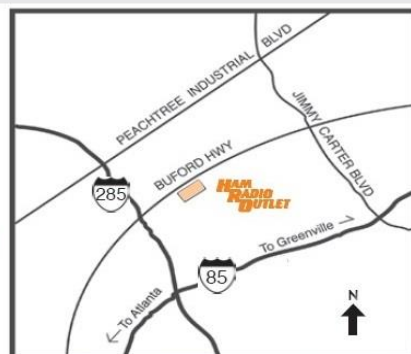
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West (800) 854-6046

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Mountain (800) 444-9476

Mid-Atlantic (800) 444-4799

New England (800) 444-0047

Manager:

Mark KJ4VO

Assistant Mgr:

James KK4WNX

David AI4XL

Denise

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